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Hog Confinement Policy Issues and Options

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Abstract
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HOG CONFINEMENT POLICY ISSUES AND OPTIONS *

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WHAT ARE THE PUBLIC POLICY ISSUES RELATED TO HOG CONFINEMENT?

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ISSUE 1: The Siting Problem?

A. Trends and Circumstances Related to Siting.

1. The number of large hog confinement facilities being constructed in Iowa has been increasing during the last few years. Department of Natural Resources (DNR) received 41 waste storage permit applications in 1990, 59 in 1991, 58 in 1992, 109 in 1993 and 111 as of June 29, 1994. Iowa presently produces more hogs than any other state. Rapid expansion of large hog confinement facilities in states like North Carolina signal a shift in where the hog may be produced in the future.

2. Additional investment in and profitable operation of large hog confinement facilities contribute to Iowa's livestock output, employment, and income base for the benefit of the local and state economy. Livestock expansion represents an important influence on the state's ability to retain market share of the national pork industry, value-added food processing and agricultural input industries in the future.

3. Increasing the concentration of hogs into larger facilities also increases the volume of waste generated per production facility, the land area required for environmentally sound disposal and the potential for odor. As a result, potential for water quality and odor problems increases for residents and property owners in close proximity. On the other hand, large well planned and managed facilities often present less odor and environmental concerns than many small and moderate size independent family hog operations using traditional technologies and management practices.

4. Census data show Iowa farm population declining; rural town population relatively stable; and rural non farm residents living in the country increasing. In fact, the latest Census data show non farm residents living in the country to be about equal to the farm population. However, the former has been increasing in recent decades while later has been on a 60 year trend of declining numbers. Non farm residents typically include people from town who build on an acreage in the country and farmers who retire and build on an acreage in the country. When coupled with farm families living in the country, investments in residential valuation represent a significant contribution to the total valuation and property tax base for many rural counties to help finance rural roads, infrastructure and public services.

5. The potential for waste and odor problems increases when large hog confinement facilities are located in close proximity to other farmers and rural residents. Disposition of waste and odor may be sufficient to influence and reduce market value of real estate in close proximity and to alter lifestyles of those who live in close proximity. Rural residents seek some protection so

their investments, home values and lifestyles won't be placed at risk by hog confinement site decisions of neighboring farmers.

6. Risk of animal disease increases when livestock confinement facilities are located in close proximity to each other. Therefore the location of a major swine facility affects the development rights of those who own or use neighboring property. Therefore, other producers may seek protection to preserve their development rights and/or compensation for "taking" or transfer of their development rights.

7. Property rights and independent decision-making are among the fundamental freedoms contributing to the success of American Agriculture. Many farmers hold strong beliefs about property rights and seek to independently manage their property in ways that maximize their personal income and perceived quality of life. Most farmers follow a good neighbor doctrine in exercising these private property rights when expanding and/or developing new agricultural enterprise sites.

8. Traditional hog production systems were smaller and perhaps less likely to develop waste and odor problems for their neighbors. Over time, advances in hog production technology, large confinement facility designs, and the perceived problems that they may create for their neighbors and competitors have increased questions regarding the legal limits, if any, to the property rights regarding location of large hog confinement facilities that may alter development rights, air quality, water quality, living environment and market value of assets for neighbors in close proximity.

9. At the same time, many rural residents claim to have a legal right to clean air and water, or at least a level of clean air and water that may have been reasonably expected at the time investments were made in rural residence construction or purchase, whichever is appropriate.

10. The challenge is to develop a policy decision making process which encourages economic development but respects the property rights and interests for all citizens with an interest in the location decisions and provides due process for those who feel that their rights have been violated.

B. The Policy Options for the Siting Problem.

OPTION 1. Continue The Current System.

Agricultural production enterprises are partly exempted from state zoning statutes. All counties exempt family farm operations (Iowa Code 335.2). However, several counties with zoning ordinances indicated at a recent statewide conference that they regulate commercial feedlot and livestock confinements under Iowa Code 172D.4.

OPTION 2. Exempt All Commercial Agriculture.

Modify the current state zoning statutes to explicitly exempt all commercial agricultural production from county zoning authority, including all livestock feeding facilities.

OPTION 3. Establish State Siting Standards.

Modify the current exemption and establish state zoning standards for livestock facilities meeting threshold criteria. Siting authority could be granted automatically if state standards are met.

OPTION 4. Establish Local Siting Standards.

Modify the current exemption and establish local zoning standards for livestock facilities. Statutes could be written so local siting authority is granted automatically when local standards are met.

OPTION 5. Establish State Guidelines with Local Flexibility.

Modify the current exemption, establish state zoning guidelines, and establish a local remonstrance process in which local zoning boards would have some flexibility in siting standards.

OPTION 6. Establish a Voter Referendum Process.

Continue the current exemption, unless state or county voter referendum passes for legislature and/or county supervisors to develop livestock confinement site location standards and feeding zones.

OPTION 7. A combination or variation of the above.

C. Probable Consequences of the Siting Issue Options.

Option 1 Consequences: Continuing the Current System.

In the present system, agricultural production enterprises are partly exempted from state zoning statutes. All counties exempt family farm operations under Iowa Code 335.2. However, several counties with zoning ordinances indicated at a recent statewide conference that they regulate commercial feedlot and livestock confinements under Iowa Code 172D.4 The conclusion is state statutes have not been interpreted uniformly by Iowa counties regarding the livestock confinement exemption from county zoning authority. Large commercial livestock facilities may be subject to location standards in several of Iowa's counties but not in the others. In addition, some counties exempt livestock facilities owned by a farm family, but consider livestock facilities not owned by a family farm to be subject to local zoning authority.

A growing number of court decisions may alter the scope and status of operations covered by the exemption. However, legal experts continue to disagree over which circumstances are covered by the exemption. State law appears to contribute to the confusion with contradictory statutes:

County Zoning Chapter: Iowa Code 335.2 No ordinance adopted under this chapter applies to land, farm houses, farm barns, farm out-buildings or other buildings or structures which are primarily adapted by reason of nature and area for use for agricultural purposes, while so used.

Livestock Feedlots Chapter: Iowa Code 172D.4 1. A person who operates a feedlot shall comply with applicable zoning requirements.

Iowa Code 172D.4 2a. A zoning requirement shall apply to a feedlot with an established date of operation subsequent to the effective date of the zoning requirement.

Iowa Code 172D.1 "Feedlot" means a lot, yard, corral, or other area in which livestock are confined, primarily for the purposes of feeding and growth prior to slaughter. The term does not include areas which are used for the raising of crops or other vegetation and upon which livestock are allowed to graze or feed.

According to a recent DNR Survey (Oct. 1994), county officials in four of six surrounding states have local zoning authority for livestock confinement facilities. In addition, some counties in North Carolina have adopted siting restrictions for livestock confinement zoning, however, several of these actions are now being challenged in the North Carolina courts.

What would be the probable consequences under the status quo? Large livestock facilities may expand more rapidly in unregulated counties. Rural residents in close proximity are more likely to cite odor problems and file nuisance suits in these counties, in part because they may have fewer opportunities for recourse outside of the court system.

Large livestock facilities may initially expand more slowly in regulated counties, if standards are viewed as cumbersome and costly. However, producers covered by the existing exemption would have the same opportunities to expand in the future as they do today, unless local practices are altered by the courts and/or local zoning authorities. Other rural residences are less likely to site odor problems and related damage in regulated counties as potential local problems are solved via siting standards and processes before damage resulting from poor siting occurs.

Risk of biosecurity problems might also be reduced by local separation standards for swine facilities in the regulated counties.

Option 2 Consequences: Exempt All Commercial Agriculture.

Compared to current practice, Option 2 clearly exempts all agricultural production from zoning authority, regardless of whether a livestock confinement is family owned or not. Present restrictions on commercial agricultural producers to site livestock facilities in about a third of Iowa's counties would be removed. Hog confinement location decisions anywhere on private property owned outside of city limits would rest with the property owner.

This option provides a regulatory environment with the least impediments for large scale livestock expansion. However, other rural residents who own or use property in close proximity would have less protection and/or opportunity for citizen input into the siting decisions. Their only recourse would be to bring a nuisance suit if spillovers and damages occur and the ability to bring a nuisance suit may depend upon whether the hog confinement is located in an approved agricultural area.

In addition, neighboring swine producers may face an increase in biosecurity risks, unless swine development rights are purchased from neighbors.

Option 3 Consequences: Establish State Siting Standards.

This option provides a regulatory environment with more siting processes for large confinement development compared to Options 1 and 2. The expansion rate of large livestock facilities may tend

to be slower as the state adopts increasingly restrictive zoning standards.

Option 3 does create the opportunity to establish one set of statewide site location standards and livestock confinement zones. Some argue having one set of statewide standards creates a level playing field compared to 99 different sets of site location standards that would occur under other options.

However compared to current county practice, this option may represent a loss of local flexibility. In addition, state standards may represent an additional unfunded state mandate if the state sets the standards but requires local government to enforce the standards. However, local enforcement could be made optional and/or state compensation could be provided to remove the unfunded state mandate stigma.

Part of the state versus local control discussion focuses on whether the state resources allocated to enforcement will be adequate to enforce the standards adopted? Presently there are 2.25 FTEs of state staff in Iowa responsible for enforcement of livestock waste standards. According to a recent DNR Survey (Oct 1994), only South Dakota has fewer livestock waste enforcement staff (1.75 FTEs) compared to Iowa and surrounding states. Illinois has 4.24 FTEs, Minnesota has 8 FTEs, Missouri has 6-7 FTEs, Nebraska has 4 FTEs, and Wisconsin has 5 FTEs. In addition, North Carolina has 10 FTEs and Kansas has 9 FTEs.

Critics suggest state standards may be favored by some pork producers because the state has a record and tendency of understaffing the enforcement which in turn means the standards are less likely to be enforced by the state compared to a system of local enforcement.

Expansion of siting standards and approval would likely require expansion of the number of state enforcement employees if siting decisions and/or enforcement of standards are to be made in a timely fashion across the state. Inspecting the sites to verify application information and/or complaints in Northwest or Northeast Iowa may require 8 hours of travel if all of the staff are located in Des Moines. Alternatively, state enforcement personnel could be located in the field and/or verification could be contracted out to local zoning staff.

The rights and ability of neighbors in seeking modification of development plans and/or compensation would depend upon how the law is drafted. Current law (Iowa Code 172D Livestock Feedlot) holds that neighbors have some priority in rights based on whether they built their residences prior to or after the livestock confinement facility was sited. The influence of neighbors in close proximity regarding siting issues depends on

how the law is drafted, whether public input is allowed, and who is designated to arbitrate objections and/or damages.

Compared to current policy, hog producers under Option 3 face fewer biosecurity risks from other hog operations if appropriate separation standards are incorporated into state requirements.

Option 4 Consequences: Establish Local Siting Standards.

Option 4 provides for local flexibility and control. Some counties will develop incentives for confinement operations as an economic development strategy, while others will develop more restrictive siting standards to protect environmentally sensitive areas, parks, public access areas, rural commercial and rural residential development areas.

For example, some counties could encourage large livestock facilities if they want more pork industry development. Other counties promoting tourism, parks and recreation may use local flexibility to increase restrictions in proximity to public areas above what would otherwise be a statewide standard.

As a result, the rate of livestock expansion may be faster in some counties and slower in others compared to Options 1 and 3. Additional responsibilities for monitoring and enforcing zoning standards would rest with zoning officials currently employed at the local level. Compared to a system of state agency control, some interests argue that local siting authority would require less time, less salary, and less travel. At the same time others suggest the local officials are more likely to be familiar with the local site, soil characteristics, wind conditions, intensity of rural development, and local preferences.

Other things being equal over time, large hog confinement facilities would tend to move to counties with less restrictive location standards. In these counties, livestock may expand at a faster rate compared to Options 1, 2, or 3. In other more restrictive counties, expansion by existing farmers as well as development of new large livestock facilities might be affected because of the present location of property in proximity to other neighbors. In addition, siting large hog confinement facilities near a county boarder may subject a builder to more than one set of county siting standards, which may require legal clarification.

Under Option 4, local neighbors and residents would have more protection from potential odor problems in the more restrictive counties compared to the less restrictive counties. In addition, the public notice and hearing process provided with local zoning may provide a greater opportunity for citizens to influence the local policymaking process compared to Options 1, 2, or 3.

Compared to the present situation, swine producers under Option 4 may face fewer biosecurity risks from neighboring swine producers if appropriate separation standards are incorporated into local ordinances.

Option 5 Consequences: State Guidelines with Local Flexibility.

Option 5 is similar to Option 3 in that it creates the opportunity to establish one statewide set of livestock confinement site location standards. However, Option 5 also adds local flexibility and a remonstrance process. A county could adopt statewide standards but modify them for areas of the county where citizens and leaders wish to have special protection.

A remonstrance process is a formal process that allows local citizens with property in close proximity to petition and document the specific points of opposition and potential damage before siting approval is given. The developer would have the opportunity to address the points of grievance, purchase development rights, and/or modify construction plans, waste management plans, and/or odor management plan before the construction begins.

The local zoning board would have limited flexibility and final authority for granting, modifying or rejecting the site location permit. If there is no remonstrance by a specified number of citizens within a certain time period, location authority might be automatically granted by state law as long as state and local requirements are met.

Under Option 5, if there are no objections, a livestock confinement facility could be built almost as fast as under Option 3. But even if a local remonstrance occurred, the approval process would only be slowed by a legally specified period of time--perhaps an additional 60 days. Because of differences in standards across counties, Option 5 also may result in some hog confinement facilities sited near county borders being subject to standards in more than one county.

Compared to the present situation, large swine producers may face fewer biosecurity risks from neighboring swine producers if appropriate separation standards between swine facilities are incorporated in state guidelines and local standards.

Option 6 Consequences: Establish a Voter Referendum Process.

Option 6 generates the highest level of citizen participation and involvement in the process. This option would require more extensive voter education programs than any of the other options. This option could conceivably provide a rate of livestock

expansion similar to the present system, if citizens fail to place the referendum on the ballot or if the question is voted down. However, the purpose of ballot question would be to determine public preferences regarding (1) whether state or local officials should have more authority over siting standards for large livestock confinement facilities, (2) whether the siting standards should be more or less restrictive than current law, and (3) whether a local remonstrance process should be adopted.

To implement this option, the legislature must first pass legislation to allow statewide or county by county voter referendum processes. If voted on a county by county basis, the impacts of livestock producers and other rural residents would have outcomes similar to Options 4 and 6. If voted on a statewide basis, the impacts would be similar to Options 2, 3 and 5.

Option 7 Consequences: A combination or variation of the above.

ISSUE 2. The Environmental Problem.

What principles should be used in environmental standards for waste and odor management of large hog confinement facilities? Should waste and odor management plans be required? Should performance be monitored regularly, periodically or only after complaint? How will appropriate closure and payment of closure costs be assured?

A. Current Trends and Policy Standards for Hog Confinements.

Iowa's present policy on livestock confinement feeding operations focuses primarily on surface and groundwater protection. The following are the six major aspects of Iowa's current policy.

1. Construction Permits Required.

Iowa Department of Natural Resources (DNR) rules require certain new or expanding confinement feeding operations to obtain construction permits. A construction permit authorizes the proposed construction, installation or modification of the waste control system for an animal feeding operation. It also includes restrictions or conditions pertaining to the authorized construction. A construction permit is issued only after the DNR has reviewed the plans, and determined that the system will comply with applicable laws and DNR rules for design and construction. For example, earthen waste storage basins must have a capacity to store between 180 and 240 days of waste production. The primary focus of a construction permit is to assure adequacy and management of the waste control facilities, not the design and management of confinement facilities.

The requirement for a construction permit is determined by the capacity of the operation and the type of waste control system used. Construction permits are required for: a) any confinement feeding operation using an anaerobic lagoon as part of its waste control system; b) any confinement feeding operation using an earthen waste storage basin and having a capacity of 200 animal units (500) hogs or more; c) any confinement feeding using a formed tank waste storage system and having an animal capacity of 2,000 animal units (5,000 hogs) or more; and d) other confinement feeding operations that are notified in writing by the DNR.

Iowa law requires that the design plans for anaerobic lagoons or waste storage basins submitted to DNR be prepared by registered professional engineers or by personnel of the USDA-SCS. USDA-ASCS aerial photos are required and must show the location of the existing and/or proposed animal feeding operation and waste control system, and the location of any neighboring residences or public areas within 1/2 mile of the operation. A pre-construction site inspection is conducted by DNR to verify that

separation distance requirements are met for all anaerobic lagoons and for those using earthen slurry storage basins having a capacity of 200 or more animal units. Post construction inspections or periodic site visits are not conducted unless complaints are received.

Information on the amounts and location of the land areas on which wastes will be disposed is required as part of the application. Soil boring data are required for anaerobic lagoons, earthen slurry waste storage basins, open feedlot runoff storage basins, and other earthen waste storage structures. Percolation rates cannot exceed 1/16 inch per day, with post-construction soil percolation testing required. DNR does not require installation of monitoring wells, but may require wells on a case by case basis if site conditions warrant.

2. Operating Permits Required for Feedlots but Not Confinements.

An operation permit describes the minimum waste control requirements an animal feeding operation must follow. The permit also lists monitoring and reporting requirements, acceptable methods of disposing stored wastes, as well as other conditions the DNR determines necessary to prevent water pollution. Operation permits are issued for up to five years, but may be revoked, suspended or modified by the DNR if the permit terms are violated or if unlawful waste discharges occur. Existing animal feeding operations already holding an operation permit must apply for a permit renewal when the existing permit expires.

Certain open feedlots a) exceeding 1,000 total animal units (1,000 beef cattle, 2,500 hogs, etc.), b) exceeding 300 total animal units if wastes are discharged through a man-made drainage system and/or c) if required by the DNR in writing after an on-site inspection must obtain an operating permit if wastes are discharged into a stream or other water of the state. Open feedlots required to obtain an operating permit must also apply for and obtain a construction permit. In addition the DNR may require additional open feedlots to apply for a construction permit after an on-site inspection.

Confinement feeding operations are not required to obtain an operation permit unless the DNR notifies the operation that a permit is required. Confinement feeding operations are, however, required to collect and store ALL wastes produced in the operation between periods of waste disposal and to dispose of the stored wastes by land application. The direct discharge of wastes from confinement operations into state waters is prohibited.

3. Separation Distance Requirements.

Iowa law sets minimum separation distance requirements to neighboring residences or public use areas for construction of

new or expansion of existing, anaerobic lagoons and earthen waste slurry storage basins. The minimum separation distance is 1,250 feet from residences not owned by the operation and from public uses areas other than roads for operations that contains less than 1.6 million pounds of beef cattle and 625,000 pounds of animal weight for other species (approximately 2000 cattle or 5000 hogs). For operations with capacity greater than the levels above, the minimum separation distance is 1,875 feet. Anaerobic lagoons or earthen waste slurry storage basins may be constructed closer to a neighbor's residence if a written agreement waiving these requirements is entered into with the neighbor and the agreement is recorded with the county recorder.

4. Land Application Required for All Confinements.

All wastes removed from a confinement feeding operation must be disposed on land in a manner that does not cause surface water or groundwater pollution. DNR has developed guidelines for land application; however animal feeding operations are not required to follow these guidelines, and may use different disposal practices.

The DNR land application guidelines include recommendations for nitrogen and phosphorus. Nitrogen applications from all sources, including waste disposal, are recommended at rates that are not to exceed the annual nitrogen requirement of the crops being grown. The maximum total nitrogen application in any one year should not exceed 400 pounds per acre and applications at this level should only be used with high nitrogen use crops. The average nitrogen application rate over an extended period should not exceed 250 pounds per acre of available nitrogen per year and this rate should only be used with high nitrogen use crops.

Because the amount of available nitrogen in animal wastes depends on a number of factors, laboratory analysis is suggested. However, guidelines are provided for figuring an estimate if laboratory analysis is not readily available.

DNR recommends that phosphorus be applied at rates equivalent to crop uptake when soil tests indicate adequate phosphorus levels (40 to 60 pounds per acre) and greater amounts when soil tests indicate lower phosphorus levels.

Spreading animal waste on frozen or snow-covered ground should be avoided. Wastes spread on lands that flood should be incorporated into the soil.

Wastes should not be spread on land located within 200 feet of and draining into any sinkhole, stream, surface intake for a tile, pond, or well unless there is adequate erosion control or wastes are incorporated into the soil. Wastes should not be spread on waterways except to establish seedings.

Waste disposal on tilled land with greater than 10 percent slopes should be injected, incorporated into the soil or otherwise done in a manner that maintains erosion control.

5. Confinement Closure Cleanup Required but not Assured.

When a confinement feeding operation is discontinued, all wastes and its waste control system must be removed and disposed on land as soon as practical but not more than six months after closure. However, bonding or other financial assurance is not required to ensure site clean-up if an operation closes. Several instances of closure without site clean-up have occurred in Iowa.

6. Limited Authority to Require Greater Waste Control.

If a particular operation has a history of causing environment problems or if minimum standards are not judged to be adequate to prevent surface or groundwater pollution after an on-site inspection, DNR can require a higher level of waste control. However, DNR probably lacks adequate legal authority to deny a permit according a recently released DNR Survey (1994).

7. Iowa Farmers Have Few Problems in Meeting Regulations.

In the 1992 Iowa Farm and Rural Life Poll, only 11 of the 1,576 (seven-tenths of one percent) livestock producers that participated in the survey indicated they had problems meeting government regulations or guidelines concerning manure storage or application. Out of the sample of respondents, only 4.2 percent reported they had received complaints about odors, noise or flies from their neighbors. However, 61 percent of the respondents indicated that manure management is a major issue within the industry, while 13 percent disagreed and 26 percent were unsure. Furthermore, only 8 percent were concerned about state and federal regulations preventing them from expanding their livestock operations. Four percent indicated that if they expanded they would likely receive complaints from neighbors.

8. Iowa Farmer Attitudes on What is an Odor Nuisance.

The 1992 Iowa Farm and Rural Life Poll indicated 32 percent of all farmer respondents indicated that a neighbors' livestock facility would be considered a major nuisance to them if there was odor during seven days or less, 18 percent indicated it would be a nuisance if there was odor between 8 to 15 days, 26 percent indicated 16 to 30 days and 24 percent indicated 31 days or more.

9. Current Distances to Livestock Facilities.

The 1992 Iowa Farm and Rural Life Poll indicated that 42 percent of livestock producers have livestock operations that are less than 1/4 mile to the residence of the closest neighbor, This

distance is between 1/4 to 1/2 mile for 38 percent of the livestock respondents to the poll. Sixteen percent of the livestock respondents have distances of 1/2 to 1 mile and 4 percent have distances of over 1 mile.

A note of caution must be used in interpreting the previous result because some interests have incorrectly used these numbers while arguing for smaller separation standards in siting new large confinements. The Poll question design identifies the proportion of **existing** facilities that may or may not be too close to residences. Many of the Poll respondents are not presently covered by distance separation requirements of DNR because of their small size and there appears to be less interest in covering existing operations of small producers than there is in selecting the most appropriate sites and siting distances for new larger hog confinements. If this is the case, the Poll shed very little light because the question design did not identify the **number of presently available open space sites** that would be most appropriate in Iowa for building new large hog confinements or how the number of most appropriate sites varies depending upon the various alternative separation distance standards.

10. Iowa Farmer Attitudes on Livestock Altering Quality of Life.

Finally, the 1992 Iowa Farm and Rural Life Poll indicated that 82 percent of the respondents indicated that their neighbors' closest livestock facility did not detract from their quality of life. However, 16 percent of the respondents responded "Yes, some" and 2 percent responded "Yes, a great deal."

B. The Policy Options for the Environmental Problem.

Option 1. Continue The Current Policy.

Option 2. Increase the Environmental Requirements.

Option 3. Allow More Opportunity for Public Input.

Option 4. Relax the Environmental Standards.

Option 5. A Combination or Variation of the Above.

C. The Probable Consequences of the Various Alternatives.

Option 1 Consequences: Continuing the Present Policy.

Current policy for large livestock confinement facilities includes DNR approval of construction permits, soil borings, seepage limits, land disposal recommendations, separation distances, and a complaint driven enforcement process.

Under current policy, hog confinements would continue to expand at current rate adjusted by economic conditions and relative competitiveness with policies of other states. In Iowa, the rate of hog confinement expansion may be greater in agricultural areas already approved and slower in other areas outside of approved agricultural areas. However, the expansion differential may or may not be very great. In the future this differential may depend on the courts as judges continue to clarify the status of rights of those who build large confinement facilities and those who own or use land in close proximity until sufficient case law is developed to consistently interpret present policy.

Option 2 Consequences: Increasing Environmental Requirements.

Debate has focused on requiring waste and odor management plans, operating permits in addition to construction permits, increasing separation requirements, acreage and land application rules, odor standards, increased monitoring, and financial assurance for closure. Several proposals for changing Iowa policy regarding large hog confinement facilities are as follows:

1. Requirements Could be Added to DNR Construction Permits.

DNR could require monitoring wells for some or all lagoons and waste storage basins as a part of qualifying for a construction permits. Even if a few pilot monitoring wells were randomly established at taxpayer expense, more accurate public information would become available and may provide a basis for reducing public environmental concerns or increasing them, depending upon the results.

The Citizens Task Force on Livestock Concentration recommends that DNR should be adequately funded to do core sampling at lagoon sites and to do periodic inspections of facilities. Furthermore, they suggest that enforcement be financed through a check-off system on a per head basis by those operations to which these regulations apply (greater than 1,000 animal units).

In addition, the Citizens Task Force suggests that lagoon requirements should be based on the best available technologies to prevent leaching, spills and vapors. These requirements might

include storage basin covers, foliage barriers and cement-lined bottoms and side walls.

2. Operating Plans and Operating Permits could be Required.

Operating plans and permits could be required by DNR to assure minimum odor standards for any neighboring residents. Dr. Michael Duffy, ISU Extension Economist suggests adoption of a standard used in Germany in which owners and users of property are not be subjected to objectionable odor more than 2 percent of the time. This standard was considered to be a threshold for health considerations by the judge in the Buena Vista case of Wienhold vs. Wolff. Distance and weather data on wind direction and other factors contributing to detectible smell could be used to determine whether neighbors are likely to be exposed to confinement smell more than seven days per year. If the likelihood is greater than the standard, waste storage basins could be covered, confinement facility odor could be enclosed and/or management practices could be altered in the operating plan to reduce the odor exposure of neighbors and/or another site could be selected to meet the standards before an operating permit is granted or renewed.

Alternatively, the Citizens Task Force on Livestock Concentration recommends requiring operators with facility capacity of 1000 animal units or more to obtain an annual operating permit from their respective county supervisors in addition to the construction permit required by the DNR. Permits would be renewed after proof of compliance with existing regulations and a waste management plan for the operation. A five-year waste management plan would be required for submission of the first operating permit. An annual fee would be charged to cover the costs of administration.

3. Separation Standards could be Increased.

The Governor's Environmental Committee has discussed increasing separation distances between neighboring residents and livestock confinement facilities with over 625,000 pounds of livestock capacity from 1,875 feet to 2,500 feet (from a little over 1/3 mile to a little less than 1/2 mile). In addition, the Committee discussed increasing separation distances up to a mile (5280 feet) for public use areas such as state and county parks.

Alternatively, the Citizens Task Force on Livestock Concentration recommends 2.5 ft per animal unit separation between the confinement facility and a neighboring residence. Therefore, a 2,500 hog confinement would require 2,500 foot separation, but a 10,000 hog confinement would require a 10,000 foot separation, unless written permission is obtained from the neighbors. This approach would clearly become more restrictive as the size of the confinement operation increases.

The Citizens Task Force also would have DNR apply the separation standards to any part of the confinement facility and not just to the waste storage facility. Present DNR separation distances apply to the waste storage facility only. As a result, large confinements with multiple buildings may in fact cover a quarter mile distance. As a result, the separation distance between a residence and the nearest confinement building with open sides may be considerably less than the minimum separation standard, even though the waste storage facility separation distance to the residence distance is in compliance.

In addition, the Citizens Task Force recommends a 1/2 mile separation from confinement facilities to streams, lakes, drainage wells and other waters in the state where the land is level. The Task Force suggests increasing the distances for land with more slope. Finally, they recommend minimum separations of 1 mile for public recreation areas, parks, and wildlife management areas.

Presently, cities possess authority to zone up to two miles outside of the city limits. County zoning officials have suggested the need for local flexibility on siting issues regarding state and county parks, public use, tourism areas and respective major access routes that would not necessarily be covered by minimum separation standards. Four of the six contiguous states allow county zoning of livestock feeding facilities.

Neighboring states have a variety of separation standards according to a recent DNR Survey. While some are less restrictive, others are more restrictive. While Iowa appears to be about average, most of the states are also considering changes in public policy regarding livestock feeding confinements.

Illinois imposes 1/2 mile separations from populated areas of more than 10 houses and 1/4 mile separations from other non-farm neighboring residences, unless the facility is in an agricultural area. And in this case an exemption depends on whether the livestock facility was there first.

Kansas imposes no separations on facilities under 300 animal units, 1,320 feet separations on facilities between 300 and 999 animal units and 4,000 feet separations on facilities over 1,000 animal units (2,500 hogs).

Minnesota law allows counties to adopt separation standards for livestock feeding confinements as part of zoning ordinances.

Missouri rules require that confinement feeding operations be located as far as practical from any built up area and in no case closer than 50 to 200 feet from a dwelling, 300 feet from a well or water supply structure or 100 feet from a creek.

Nebraska sets minimum separation distances at 100 feet from domestic wells and 1,000 feet from public wells. While there are no other statewide separation distance requirements, Nebraska allows county zoning of animal feeding operations to be more restrictive than state rules.

North Carolina requires 750 feet separations for public use areas or residences not owned by the operation.

South Dakota requires that confinements to be located at least 1,000 feet from public water supplies, 100-150 feet from private wells, and 50 feet from a neighboring property line. South Dakota recommends at least 300 feet from any dwelling and 1/2 mile from a city or town. In addition, South Dakota allows county zoning authority to be more restrictive than state rules.

Wisconsin law establishes no statewide standards. However, control of siting and separations for livestock confinement facilities is provided for through county zoning authority.

4. Land Application Guidelines Could Become Requirements.

The Governor's Environment Committee has discussed requiring large livestock feeders to submit nutrient management plans before DNR would grant construction and operating permits. These nutrient management plans would require soil and waste testing, knifing or incorporating waste applications within 200 feet of water bodies and ag drainage wells, restrictions on irrigation disposal.

Scientists have entered the debate over whether nitrogen or phosphorus standards should be used in figuring acreage requirements for each livestock feeding confinement. A phosphorus standard results in more acreage being required per animal unit of waste generated.

In testimony to the Governor's Committee, Dr. Randy Killorn, an ISU Extension Agronomist, argues that both excessive nitrogen and phosphorus represent potential environmental problems. However, when animal manure is applied to meet the nitrogen needs of corn, phosphorus is applied at a rate that exceeds the amount required for maximum plant use. Applying phosphorus at rates that exceed crop removal increases the phosphorus soil test levels. If erosion occurs and phosphorus enriched soil is washed into surface water, it is highly probable that this will promote algal and plant growth and hasten eutrophication of the water. In a case study analysis for a farrow to finish operation producing 1,500 head per year, a phosphorus standard would require 50 percent more acreage (188 acres) than the conventional nitrogen standard (125 acres).

A separate Citizens Task Force for Livestock Concentration recommends using the phosphorus standard. However, the DNR Survey indicates that all states surveyed--but one--rely on nitrogen recommendations. Minnesota uses nitrogen mandates rather recommendations. North Carolina bases its land application recommendations on a combination of nitrogen and phosphorus standards.

In addition, the Citizens Task Force would prohibit disposal of waste through irrigation guns and would disallow Fall disposal when soil temperature is below 50 degrees. Application to frozen soil would be prohibited. In emergency, manure application to frozen ground would be allowed after approval by county supervisors at a public meeting.

5. Financial Assurance Could be Required for Closure.

The Governor's Environmental Committee has discussed bonding or setting up an indemnity fund to cover the costs of cleaning up abandoned livestock facilities. Under an indemnity fund proposal, a small annual fee on producers or an assessment per head could be collected to establish a fund to clean up the few abandoned operations that will likely occur in Iowa annually.

Alternatively, Pennsylvania requires that confinements cannot be sited on a parcel of land that is less than a specified size. If 80 to 100 acres are required, operators are prevented from subdividing and selling off smaller parcels and leaving confinement closure costs to the county after forfeiture.

6. Increase DNR Authority to Deny Permits.

According to the DNR Survey, Iowa DNR "probably lacks adequate legal authority to deny a permit" in situations where a livestock producer or a livestock operation has a history of causing environmental problems. DNR can presently require higher levels of waste control in cases of habitual violators.

Option 3 Consequences: Allow More Opportunity for Public Input.

Several groups have expressed interest in allowing more public input. Proposals consistent with this concept are as follows.

1. Require Local Public Notice Before Permit Approval.

Perhaps one of the most contentious issues of the hog confinement debate is how much public input and whose input should matter? Presently, Iowa has no process for issuing public notice prior to permit issuance. The lack of a formal public notice and hearing process and the lack of initiative in identifying appropriate

alternative sites is often cited as the reason why Premium Standard Farms relocated from Iowa to Missouri.

The Citizens Task Force on Livestock Concentration suggests that DNR should notify all neighboring residents within five miles of a proposed hog confinement site. In order to prevent loss of future Premium Standard-type operations, perhaps it may also be prudent to add holding hearings within a specified 60 day period and having community economic development committees identify alternative sites so that the economic development prospect doesn't pick another state when one site is judged to be inappropriate.

According the DNR Survey, public notice is required as part of the state permitting process in Kansas, Missouri, Wisconsin and North Carolina. In these cases, hearings are only held if there is sufficient public interest. Minnesota, Nebraska, and South Dakota do not require public notice as part of state permitting processes, but public notice and hearing process may apply in these states through their county zoning processes. Only Illinois neither requires public notice during the state permitting process nor does it allow county zoning of livestock feeding confinements.

2. Clear Legal Basis for Local Authority in Siting Decisions.

An alternative to including public notice and voluntary hearing processes as a part of the state permitting process is to grant zoning authority to local officials and make such due process opportunities available through the local zoning process. This approach is recommended by the Citizens Task Force on Livestock Concentration. The DNR Survey indicates four of six contiguous states appear to allow local zoning and local flexibility to impose more or less restrictive siting and/or waste management standards than imposed by their respective state government. The Citizens Task Force on Livestock Concentration recommends amending Chapter 335 to allow counties to zone confinement livestock facilities and feedlots. Those who favor this proposal suggest local citizens have greater opportunity for input if siting decisions are made locally.

3. State and Local Partnerships to Enhance Enforcement.

There may be opportunities for state and local government officials to share monitoring and enforcement responsibilities to enhance timeliness and effectiveness of enforcement.

Option 4 Consequences: Relax Standards for Site Approval.

Rather than increasing the environmental requirements for livestock feeding operations, Iowa could consider the following six alternatives consistent with this policy direction.

1. Relax Construction Permit Requirements.

Concerns regarding groundwater and surface water contamination are likely to increase as lack of standards may result in some confinement operators alter waste management practices to reduce costs.

2. Reduce Separation Distance Requirements.

Concerns regarding environmental and economic spillovers are likely to increase as confinements are allowed to locate in closer proximity to residential and other developments and/or environmentally sensitive and public use areas. Nuisance lawsuits could be expected to increase in areas not designated as "Agricultural Use Areas." However, rights to file nuisance suits appear to be terminated for those within and in close proximity to confinements located inside an "Agricultural Use Area."

4. Remove Land Application Guidelines.

Current guidelines are not binding. The removal of current guidelines may or may not have much of an impact depending on whether other sources for "best management practice" information is available and used. For example, such information may continue to be available from University Extension. Those who current ignore the standards may continue to do so. However, if an increasing number of operators reduce their land application acreages, environmental problems with groundwater and surface water may increase causing increasing public concern.

5. Remove Requirements for Confinement Closure Cleanup.

Environmental concerns may increase if an increasing number of confinement operators do not voluntarily clean up confinement waste storage facilities during closure.

6. Reduce DNR Authority for Waste Control.

Environmental concerns may increase if an increasing number of confinement operators do not follow the standards imposed by law as a result of weaker enforcement authority.

In general, greater economic growth may result from reducing the costs imposed on confinement operators by current environmental regulations. However as a result, economic and environmental spillovers may impose increasing costs on owners and users of property in close proximity and on those who are affected by the potential reduction in quality of groundwater and surface water. These spillovers may result in an increasing number of nuisance lawsuits by those with an ability to bring suit.

Option 5 Consequences: A Combination or Variation of the Above.

ISSUE 3: The Property Rights Problem.

What rights and remedies should agricultural producers have to create and expand livestock confinements? What rights and remedies should other owners and users of property in close proximity have regarding future development, just compensation for taking of property rights, prevention and mitigation of damages from economic and environmental spillovers, and/or recourse if damage occurs?

A. Current Policy and Trends Related to Property Rights.

1. U.S. CONSTITUTION; 5th Amendment: "No person shall be deprived of life, liberty or property without due process of law; nor shall private property be taken for public use, without just compensation.

2. U.S. CONSTITUTION; 14th Amendment: No state shall deprive any person of life, liberty or property without due process of law nor deny to any person within its jurisdiction the equal protection of the laws.

3. IOWA CONSTITUTION: Article 1: Private property shall not be taken for public use without just compensation first being made, or secured to be made to the owner thereof as soon as the damage shall be assessed by a jury, who shall not take into consideration of advantages that may result to said owner on account of the improvements for which it was taken.

4. PROPERTY RIGHTS: Much of the success of our nation and the performance of our economic system can be traced to the creation of private property rights and the right of citizens to own property. In no industry is this more true than in the development of American agriculture. The creation of private property rights and the ability to accumulate and control the use of property are powerful incentives and motivating forces driving our economy and society.

5. Property ownership typically means that whoever owns the land usually also owns all things below and all things above the land, unless otherwise specified on the deed. This allows owners of property freedom to use their property in whatever manner they legally wish to, so long as they do not infringe upon the rights of others or damage the property of others.

6. The government may only take private property for public use if the owner receives due process and is compensated. The government may also limit and/or regulate the use of private property if certain private uses are potentially contrary to public interest or damage others in close proximity. Livestock

confinement facilities have generated several questions related to these property rights issues.

7. Building a large livestock confinement facility may effectively preclude neighboring producers from building a similar confinement facility within a certain biosecurity radius due to increasing risks of spreading livestock diseases (one mile separation, plus or minus). Typically, large hog confinement operators prefer not to locate next to other hog operations for these reasons. Should owners of the property in close proximity be compensated for accepting limits on the future agricultural development and/or use of their property or should they be allowed to build a similar facility within the biosecurity radius?

8. Building a large livestock confinement facility may effectively preclude a neighboring property owner from developing the adjacent land for non agricultural uses such as residential, commercial, industrial uses. In most cases agricultural use is the highest and best legal use because most of rural Iowa does not represent prime real estate for more urban and other non agricultural development. However in some cases, non agricultural use may in fact generate a higher return and value attributable to the property. Should owners of the property in close proximity be compensated for accepting limits on the future non agricultural development and/or value to their property from potential higher use?

9. Building a livestock confinement facility may create odor and other spillovers real and/or perceived that may affect the market value and other quality of life characteristics of private property in close proximity. In addition, building a livestock confinement facility may affect the use of public areas in close proximity and related private sector businesses. Should property owners in close proximity and/or other citizens using public areas have an opportunity to seek mitigation, compensation and/or prevention of these damages before the facility is built or will their only recourse be to bring suit for damages after the facility is built?

10. The challenge is to develop a policy decision making process which encourages economic development but respects the property rights and interests for all citizens with an interest in the location decisions and provides due process for those who feel that their rights have been violated.

B. The Policy Options for the Property Rights Problem.

OPTION 1. Return to Historic Policy.

Return to the historic policy of no land use planning, no zoning for agriculture, and no voluntary agricultural areas.

OPTION 2. Encourage More Agricultural Areas.

Agricultural Areas are developed voluntarily and provide nuisance suit protection for producers within the agricultural area. However, they also represent a transfer of a property right from those who live in close proximity.

OPTION 3. Develop a Siting Process with Public Input.

A siting process with appropriate separations, waste management and odor standards and public input would provide more respect of the property rights of those who own or use property in close proximity. Economic and environmental spillovers might be reduced or prevented before they occur.

OPTION 4. Develop a System for Transfer of Property Rights.

Transfer of property rights and/or compensation processes could be designed as an explicit decision during either (1) the confinement siting process or (2) the process to approve a proposed agricultural area.

OPTION 5. A Combination or Variation of the Above.

C. The Probable Consequences of Each Option.

Option 1 Consequences: Returning to Historic Policy.

Option 1 allows producers to build livestock confinement facilities wherever they wish on property they own or lease. Most producers will attempt to follow a "good neighbor policy" and not build or manage livestock confinement facilities in ways that impact their neighbors.

However, the likelihood of owners and/or users of property in close proximity being impacted by large livestock confinement facilities will increase as the number of large livestock

confinement facilities increase in close proximity to neighbors. As a result, the likelihood of court action increases as neighbors seek damages for the economic and environmental spillovers that occur from large hog confinements being located to close to those who own or use property in close proximity.

Option 2 Consequences: Encourage More Agricultural Areas.

Originally, Option 2 was conceived as a policy tool in which farmers would voluntarily agree to restrict the use of property in the area for agricultural uses. In return, the owners would receive increasing protection from lawsuits by owners and users of property in close proximity. Over time, as more voluntary agricultural areas develop in a county, residential and other types of development are more likely to develop in non agricultural areas of the county. As the distance between agricultural confinements and other types of development increase, the opportunity for spillovers and nuisance lawsuits declines.

In general this approach sounds appropriate. However, several court rulings may alter the effectiveness of agricultural zones. Whether local Supervisors can automatically transfer the property rights of owners and users of property in close proximity without compensation and/or due process according to the Iowa and U.S. Constitution remains an open question for the courts.

The Buena Vista County case of Wienhold vs Wolff was touted as a test case of nuisance protection under Iowa's Agricultural Area law. But this may or may not be the case after all. In his ruling, the judge did offer his opinion regarding Agricultural Areas (Iowa Code 352.11). He stated that "the legislative intent to protect agricultural land from nonagricultural development pressures would be totally circumvented...if development, whether it be industrial, commercial, or residential in nature, could come to or locate to a position just outside of the perimeter of an agricultural areas and then maintain a nuisance action against a farm operation located inside an agricultural area."

However, the judge decided that this opinion was not germane to the Wienhold vs Wolff case because the lawsuit was commenced and damages were sustained by the plaintiffs commencing prior to the Buena Vista County Board of Supervisors approval of the application to form the Agricultural Area.

Whether or not the Iowa Supreme Court will concur with this opinion of "legislative intent" is an open question. More importantly, the legal issues also involve questions of whether the state law and its "legislative intent" are constitutional. These issues can be tried in either state or federal courts.

On the issues of constitutionality, the judge decided the Wienholds had not been denied due process that in fact the legislative process and the county supervisor hearing process regarding Agricultural Areas represented due process.

However, on the issue of whether the Wolffs' actions constituted a "taking" of property rights from the Wienholds, the judge decided that a "taking" may be anything which substantially deprives one of the use and enjoyment of his/her property or a portion thereof.

The Judge went on to say, "it is extremely questionable whether the nuisance restriction, which is triggered only by the mere fact of approval of an agricultural area and which restriction gives no credence at all to the priority of use of a neighboring property, should be applied to take away a substantial part of a neighbor's nuisance action which was commenced prior to the date of the establishment of the agricultural area."

In other words, the judge seems to declare that Wienholds were there prior to the building of the hog confinement and lagoon, that damages did in fact occur due to the hog confinement odors and that the nuisance suit regarding the hog confinement was initiated prior to the approval of the agricultural area.

The judge granted the Wienholds damages of $45,000. In the decision, the judge cited a belief that the Wienholds did not use available means to reduce the impact of the odor on the Wolffs, (such as waste storage covers, windbreaks, etc.) However, the judge decided not to grant an injunction against the Wolffs' continuing their hog confinement operations. Here he stated that the interest of the State in the encouragement of livestock production and the interest of the defendants in continuing their livestock operation outweigh the interest of the plaintiffs current restriction of enjoyment of their property due to the livestock odors experienced by them.

In summary, the Buena Vista County decision raises as many questions as it answers. Should the legislature give some consideration to the priority of rights for neighbors who were there long before a large hog confinement was built? Should the only recourse of the future hog confinement neighbors be to voice opposition to the county supervisors before an Agricultural Area is established? One problem with this approach is that an Agricultural Area may be established long before there is any knowledge or plans that a large hog confinement might be sited near the edge of the agricultural are. Should pork producers in an agricultural area have any responsibility for mitigating strong odors and/or economic spillovers on those in close proximity or must the neighbors move?

As a result, it appears that owners of livestock confinement facilities within an agricultural area are protected from nuisance lawsuits that may be brought by those who voluntarily joined the agricultural area. In addition, it appears that at least one Iowa district judge believes these owners are also protected from nuisance lawsuits that may be brought by those who are outside of the agricultural area.

This interpretation is likely to generate more opposition to agricultural areas proposed in the future because neighbors outside of the agricultural areas are more likely to object to the approval because of the "taking without compensation" issue and the loss of nuisance suit protection. We may see two class hog confinement system develop in Iowa: those who operate with full nuisance suit protection within the 421 previously approved agricultural areas in Iowa and all the other Iowa pork producers who are subject to nuisance suits by neighbors but who are unable to gain approval of an agricultural area in the future.

The Citizens Task Force on Livestock Concentration recommends amending Chapter 352.7 to expressly allow supervisors discretion to approve or deny an application for an agricultural area and that neighbors within 5 miles of an agricultural area boundary should be notified of a public hearing. They recommend that any land within an agricultural area that is transferred to a new owner should not automatically be included in the ag area. Involuntary inclusion of farmers, owners and operators in any agriculture area or zone is opposed. However, the Citizens Task Force did not expressly deal with the issue of involuntary transfer or taking of property rights without compensation from landowners and users in close proximity to agricultural areas.

Option 3 Consequences: A Siting Process with Public Input.

Option 3 focuses on reducing the spillover effects of large livestock confinement facilities rather than adjusting the property rights of producers and their neighbors. As a result, spillover problems are prevented before they occur. (See ISSUE 1 and 2 for variations in how this option might be implemented.)

As spillover effects of large livestock facilities are reduced by appropriate separations, waste management and odor standards, the incidence of nuisance lawsuits will also be reduced.

This approach would recognize the prior property rights of owners and users of property in close proximity. Large livestock confinement facilities could not be built and certain waste management practices may be prohibited within specified distances to residential and/or other specified property uses. This approach does resolve biosecurity risks by preventing property owners from building confinement facilities in close proximity.

At the same time, owners and users of property in close proximity are less likely to bring nuisance lawsuits if they have an opportunity to state specific objections, modify the site plan and/or prevent approval of the site plan in some cases.

On the other hand, Option 3 does not prevent owners and users of property in close proximity from filing nuisance lawsuits at some future point in time, if spillovers do occur. However, some would argue that this simply represents a check and balance against intentional and/or extreme spillovers affecting neighbors in close proximity.

Option 4 Consequences: Transfer Property Rights/Compensation.

Option 4 recognizes that owners and users of property in close proximity do have property rights that may be transferred either through a market or eminent domain process.

Some states use a market approach to purchase non agricultural development rights so that farmers cannot develop or sell property for non agricultural uses. Similarly clean air rights and/or nuisance lawsuit rights of owners of property in close proximity (within a 1 mile radius, plus or minus as specified) could be purchased by the producer building a large livestock confinement facility. This would reduce the risk of nuisance lawsuits for the producer building the facility but it would also compensate owners of property in close proximity for transferring some of their property rights.

This approach could also be used to resolve biosecurity risks for producers building new facilities by allowing them to acquire livestock confinement development rights from owners of property in close proximity. Of course the transfer would occur in return for appropriate compensation. The state in partnerships with counties wishing to encourage development of swine operations might consider a voluntary program for purchasing non-ag development rights to preserve areas for agricultural development and to provide a "safe haven" from nuisance lawsuits. This is the approach used in Pennsylvania.

Alternatively, the state might consider legally declaring agricultural confinement sites as a "public purpose" and then develop a siting (zoning) process to transfer clean air, nuisance lawsuit rights, and biosecurity rights from owners of property in close proximity. Whether this could be accomplished in accordance with the U.S. and Iowa Constitutions is a legal question and at a minimum may require due process and compensation for the owners of property in close proximity.

This option does not reduce the potential for spillovers from large livestock confinement facilities. In fact, some analysts

would likely argue that the present disincentives against creating spillovers might be reduced if this approach were adopted in the absence of other measures. They argue this option is more likely to achieve its intended objective if it is combined with Option 2 processes for establishing agricultural areas and/or Option 3 siting processes with appropriate separations, waste management and odor standards.

Option 5 Consequences: A Combination or Variation of the Above.

ISSUE 4: The Industry Farm Structure Problem.

Should public policy be designed to favor, restrict, and/or regulate various industry institutional structures and/or marketing coordination practices that influence the relative competitiveness of small, medium or large farms?

A. Trends and Directions Related to Agricultural Structure.

The trends of increasing size, changing structure and control of agricultural production have been developing over several decades. National and state policies on corporate ownership of farmland and livestock, regulations and pricing policies regarding agricultural inputs, investment in development and access to new technology, preferential tax policy, capital markets regulation and structure, anti-trust policy, pricing, market access and price information policy, and now environmental policies influence farm structure. Each can each be altered to give preferential treatment to institutions of a preferred size and/or of political importance to policymakers and society.

The swine industry is only the latest of several industries for which the structure and coordination have dramatically changed. Perhaps the most classic series on the structure of agriculture was written 20 years ago and titled "Who Will Control U.S. Agriculture?" The concept behind this question is that current trends are a result of private sector institutional behavior and performance in response to public policy. Economists can design a variety of policy tools to bring about preferred institutional structures, the problem is one of society and policymakers determining which institutions are preferred and which ones should not be preferred and then finding the political will to implement such a policy. In the context of the current hog confinement debate, if society doesn't like the direction embodied in the structural trends, then there may be societal value to debating the alternatives and probable consequences. The classic series outlined six alternative structures and the policy tools required to foster each option.

1. Continuing the Current Trends.

Control of agriculture is largely vested in those who own or control the resources and make the key decisions for buying, selling, and producing. Industrialization of our food and fiber system is a major force that is shifting the future control away from the farm. Increasing variety in international, industrial and domestic food uses are driving the need for increasing coordination to produce increasingly specialized agricultural outputs. Access to alternative markets and adequate capital are key instruments of control. Acquiring economically sized farm units is becoming more costly and prohibitive to most would be

farmers. The trend toward larger and fewer farmers can be expected to continue as new technologies become available and as successful farmers adopt larger farm technologies.

2. A Dispersed Open Market Agriculture.

A dispersed independent farmer, open market system of agriculture could prevail but major changes in present policies would be necessary. In a dispersed system, large numbers of individual farmers must be able to make independent management decisions. Open markets are essential to allow the farmer to freely buy the supplies he/she needs and sell what ever he/she produces. The operating farmer plays a composite role of laborer, manager, financier, and landholder. Many farmers may be somewhat better off, in terms of the distribution and absolute level of income, compared to a system where they would become contractees or laborers. But they would lack enough power in the market place to gain substantially higher incomes, except those few who would become a part of management.

3. A Corporate Agriculture.

If nothing is done to arrest the forces already in motion, commercial agriculture will likely be increasingly concentrated in larger more industrialized units. A corporate system of agriculture would have much in common with a large industrial corporation in its organization, financing, and management. Control of men and assets would be in the hands of a group called management. If agricultural production were controlled by a few large corporations, the open markets for agricultural products would virtually disappear and would be replaced by contractual relationships. Land ownership could take several patterns. Financing could be supplied as in any other large corporation. Unionization of farm workers may develop to increase wages. Production costs might be reduced, however, through large scale production and improved coordination.

4. A Cooperative Agriculture.

A cooperative is an organization owned and controlled by its customers. The cooperative represents an institution in which farmers may access inputs and add value to their production while sharing in the returns to value-added processes. A cooperative system of agriculture would involve fewer and larger farm units than under the present system of voluntary farmers and farmer cooperatives. To maintain control, all farmers would belong to tightly organized cooperatives that would handle most procurement of supplies and all marketing of agricultural products. Land ownership could generally remain with individual cooperative members. Marketing decisions by the cooperative would place direct contractual restrictions and specifications on producer production and marketing decisions. But farmers would control

the cooperatives and they would approve the restrictive decisions on themselves. The farmers are preserved as a capitalists and board members, but they must assure the cooperative acts in their interest. As a result, the farmers would receive additional returns from value-added production processes, bargaining power from marketing larger quantities of output and/or premiums for specialized production.

5. A Government Administered Agriculture.

A government-administered agriculture would be a choice by society either to influence or replace private action in the control of our food production and marketing system. A competitive system is not necessarily stable if competition eliminates weaker competitors faster than new competitors are developed. The ultimate result over time may be that a mature industrial agricultural system becomes dominated by one or a few large firms that effectively control the industry's resources or its markets. Public concern for ample food supplies and economic justice for farmers has occasionally resulted in more government involvement in agriculture in many countries. However, U.S. agricultural policy has been moving toward less government involvement in agriculture during the most recent decade.

6. A Combination Role for Each System.

Under a combination of agricultural systems, independent farm operators would have freedom to make management decisions, but cooperatives and corporations would be assured of continued operation as well. Government would support an active role for each. The government would monitor the changing structure and recommend actions to assure minimum roles for each system. No single system would be allowed to dominate. Minimum and maximum market shares could be set. Policies and new institutions designed to maintain and encourage effective sustainable competition would be needed. An open market would be encouraged, but corporate integration and cooperative contracting could exist for a share of the total business. Management would be widely dispersed among independent farmers, corporations and farmer cooperatives.

In summary, agricultural structure issues are industry-specific and industry-wide issues that are difficult for states to influence unilaterally. These issues are industry specific because for the most part each industry has different production processes, different levels of coordination and integration, different sets of private sector participants, different regions of production and different institutional policies and constraints. The issues are industry-wide which may add unintended consequences when state policymakers act unilaterally in making major adjustments to influence agricultural structure.

Creating a level playing field industry-wide may require a national public policy decision, state public policy decisions made by the major producing states and/or private sector policy decisions made on behalf of the industry. The complexity of making industry-wide policy for creating a level playing field is made even more complex as global markets develop. Competing globally involves greater risks than domestic marketing and therefore may require more industry coordination, larger institutions and government backing to assure fair competition and trade.

7. What is a Level Playing Field?

Part of the problem is defining what a level playing field really means. A recent analysis of the Iowa Farm Business Association records for 531 Iowa farrow to finish operations indicates that there is much more variation within size groups than there is across size groups. In fact the production efficiency is uniform or flat across all of the hog unit size groups analyzed. The average "economic costs to produce 100 pounds of pork is basically the same (within $2.00/cwt for units producing less than 80 litters of pigs as it is for those producing over 320 litters. The average selling price was within a $.50/cwt. for units producing less than 80 litters of pigs compared to those producing over 320 litters.

The important point is many small pork producers are more efficient than some of the large producers and many large producers are more efficient than some of the small producers. The economic costs for hog units producing less than 80 litters varied from $38.72/cwt. to $51.32/cwt. Units producing over 320 litters had economic costs which varied from $37.64/cwt. to $45.91/cwt.

The bottom line, however, is that production efficiency is not the whole story for hog producers when you are trying to make a living. A $5/cwt profit above economic costs for the average 51 litter unit producing 400 hogs is $2,000, while the $5 profit above economic costs for a 504 litter unit producing 4,000 hogs is $20,000. The farmer operating the first unit may need other enterprises to earn the same income as the larger operation.

8. System Efficiency is Different than Producer Efficiency.

In addition, pork production efficiency on the farm is not the whole story for hog producers. In a recent ISU publication, Dr. John Lawrence points out, "It is important to recognize that pork producers and processors are not in the pork industry, but rather in the protein industry. They face stiff competition from other sectors in the consumer retail counter, in particular the poultry industry. Both broilers and turkeys have wrung inefficiency out of their system by moving to a totally vertically integrated

system in which the signals are sent directly between segments rather than relying on price signals provided by an open market. The different segments within the industry communicate and cooperate because they're owned by a single firm." As a result, systemwide "efficiency, coordination, and ability" to respond to developments regarding competing products particularly if the per capita consumption of the competing products are increasing more rapidly than pork.

9. Iowa's Corporate Farming Laws.

In Iowa, only processors are prohibited from owning pork or beef. There are no prohibitions on limited partnerships, corporations (family or otherwise) or cooperatives in owning livestock.

Iowa Code 9H.2 "In order to preserve free and private enterprise, prevent monopoly, and protect consumers, it is unlawful for any processor of beef or pork or limited partnership in which a processor holds partnership shares....to own, control or operate a feedlot in Iowa in which hogs or cattle are fed for slaughter. In addition, a processor shall not directly or indirectly control the manufacturing, processing, or preparation for sale of pork products derived from swine if the processor contracted for the care and feed of the swine in this state. However, this section does not apply to a cooperative association.... This section shall not preclude a processor or limited partnership from contracting for the purchase of hogs or cattle."

The Iowa Code generally prohibits nonfarm corporations and limited liability companies from owning farmland. However, certain family farm corporations and limited liability farm partnerships may own up to 1,500 acres.

Iowa Code 9H.4 "No Corporation or trust, other than a family farm corporation...shall acquire or otherwise obtain or lease any agricultural land in this state."

Iowa Code 9H.5 An authorized farm corporation, trusts, limited partnership shall not either acquire or otherwise obtain or lease agricultural land, if the total agricultural land would then exceed one thousand five hundred acres.

10. Is Business Status An Appropriate Criteria for Regulation?

Difficulty arises in using a corporate criteria in developing public policies to alter structural trends in agriculture or industry. Under Iowa's current corporate farming laws, many of the new large hog confinements are organized as limited liability farm partnerships and are not technically considered corporations. On the other hand, many neighboring farmers are often organized as family farm corporations but are generally regarded as independent farm families.

B. Alternatives and Consequences to the Structure Problem.

OPTION 1. Status Quo Farm Structure Policy.

The present structural trends are increasingly resulting in the ability of larger organizations to extract greater market differentials or pecuniary economies, even though production efficiencies may be roughly similar. Pecuniary economies represent an ability to extract premium prices from packers and consumers. Preferential interest rates differential for larger loans from larger money center banks. Price discounts on volume of feed and other input purchases.

The Iowa Farm Business Association analysis shows that pecuniary efficiency differences are not as large as the production efficiency differences across size groups. However, there is a longer run concern that eventually, open markets may not command enough production to justify their existence as a greater share of production is locked up under contract. As a greater share of production becomes locked up under long term contracts, more of the price variation and price adjustment may be shifted to those who buy and sell on the open market. Eventually, contracting coordination may increase and open market volume may decline to a volume below that which justifies its existence. At that point, independent farmers will not be able to enter production of a particular commodity unless they first gain market access by contracting with a processor, integrator, marketing association or develop direct access to consumer markets.

OPTION 2. Increase Size Differential Regulations.

Current DNR waste management policy already distinguishes regulations by size of feedlot or confinement capacity. As additional separation standards, land application standards, etc. are added, they generally will apply to confinement operations above the existing threshold of capacity size included under in current law unless the current approach is no longer used.

The Citizens Task Force on Livestock Concentration advocates disallowing "hog factory" property taxes based on agricultural use value. Instead they should be taxed an industrial rate. Furthermore, they recommend re-examining the use of Tax Increment Financing (TIF) programs to help build large hog confinements.

OPTION 3. Private Sector Strategies to Increase Coordination.

One approach being examined by pork producers, universities and cooperatives is to encourage the development of producer networks to increase industry coordination. This allows swine production

to be segmented and organized into larger units that may increase specialization and system efficiency. It may also allow networks of producers to access new genetic traits and to pool production output according to quality specifications in order to command premium prices.

OPTION 4. Protections for Contract Producers.

The Citizens Task Force on Livestock Concentration advocates increasing the protections for contract producers. Some concern exists that contracts are written in a manner that allows the contractor to take advantage of a producer by removing market access and/or the contractor's supply of hogs, etc. before a facility is paid off. Therefore, the Task Force recommend that a model contract be developed and information should be included about compensation. 1. Does the contract insure fair return for capital investment? 2. Does the contract contain fair return for labor and services? 3. does the contract allow the grower to have some control over the factors that determine the level of payment to the grower, e.g. feed efficiency, feed ration, good feed conversion, quality of feeder stock and feed, etc. Also to be included is a statement of the potential liability for each party to the contract, procedures and remedies available if the contract is terminated and availability of mediation.

OPTION 5. Assistance for Independent Producers and Young Farmers.

The Citizens Task Force on Livestock Confinement advocates a number of initiatives for increasing assistance to moderate sized pork producers and young farmers. First, increasing access for moderately sized farmers and small businesses to economic development funds is advocated. Second, government subsidies to "equalize" interest rates across farm size groups is advocated, recognizing that many large operations are financed at lower interest rates by outside institutions. Third, enhanced funding and better coordination for young farmer programs is advocated.

In addition, creating a property tax credit for young farmers who build livestock facilities has been proposed and discussed during the 1994 gubernatorial campaign.

OPTION 6. Relax Restrictions Processor Ownership.

A Des Moines Register article (Nov 6, 1994) highlighting the development of large scale packer-producer hog farms in the Texas panhandle illustrates the dilemma of developing a unilateral state policy. Integrated packer-producer operations like Premium Standard can expand market share of hog production and processing during periods of pork over supply by using record high packer

profit margins to subsidize expansion and operation of hog confinements at the producer level. Assuming all else equal, this strategy forces the supply adjustment due to low prices in the open market to shift to states--like Iowa--that have prohibitions on packers owning hogs.

One approach for eliminating this policy differential being exploited by large integrated corporations is to define such integration strategies as "unfair marketing practices" and pass and enforce prohibitions against such practices nationally or in all states that produce hogs. The politics, however, may not be right for development of a level playing field industry-wide. Some states will always have an incentive to develop less restrictive rules and regulations in order to promote economic development. The more restrictive states must either possess more attractive marketing, labor and/or natural resource efficiencies or pass more attractive investment incentives to offset restrictions that may cause industry migration.

Alternatively if integration is presumed to be inevitable and if society prefers that "independent farmers" should share in returns from value added, then a case can be made for relaxing Iowa's restrictions on packers owning livestock when the packer is organized as a farmer-owned cooperative or a farmer-owned corporation. This would allow Iowa's system of producers and packers to develop cooperative networks, increase coordination, share risks and spread market volatility in a similar fashion to the more integrated systems.

The final approach is to simply remove the packer-livestock ownership prohibition altogether. Interests favoring this approach are likely to suggest this option would create a level playing field for all packers in the state and nation and may encourage more investment capital in states where integrated packer-producer corporations are presently prohibited. This approach may result in fewer independent farmers, fewer open markets and loss of management control for farmers. However, those farmers who become integrated into a corporate system may experience fewer financial risks and less volatile markets.

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